KENDRIYA VIDYALAYA SITAPUR
PERIODIC TEST – 1
MATHEMATICS – IX, SESSION: 2018 – 19

Max. Marks: 40 **Time: 1 Hr and a Half**

Note: There are four sections in this Question paper. Section A, B, C and D. Section A contains 4 Questions of 1 mark each, Section B contains 4 Questions of 2 marks each, Section C contains 4 Questions of 3 marks each and Section D contains 4 Questions of 4 marks each.

SEC –A

1. Find the value of k in $p(x)=x^2 + x + k$ if $x - 1$ is a factor of p(x).
2. Find a rational number between $\frac{1}{4}$ and $\frac{3}{4}$.
3. Find the value of k, if x = 2, y = 1 is a solution of the equation 2x + 3y = k..
4. One of the angles of a triangle is 35^0 and the other two angles are equal. Find the measure of each of the equal angles.

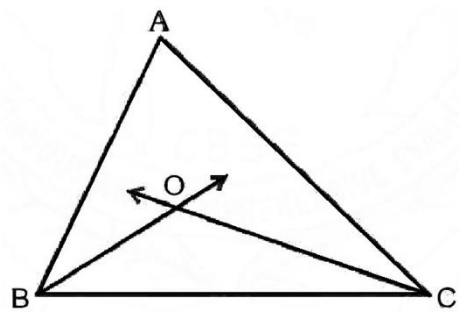
SEC –B

5. $x= 9 - 4\sqrt{5}$ find $\frac{1}{x}$.
6. Show that 1.022222……. can be expressed in the form of $\frac{p}{q}$, where p and q are integers and $q \neq 0$.
7. Factorise $a^2 + 4b^2 + 16c^2 - 4ab + 16bc - 8ca$
8. If a point C lies between two points A and B such that AC = BC, then prove that $= \frac{1}{2}AB$. Explain by drawing the figure.

SEC –C

9. Simplify $\frac{3}{5-\sqrt{3}} - \frac{2}{5+\sqrt{3}}$.
10. The Autorikshaw fare in a city is charged Rs 10 for the first kilometer and @ Rs 4 per kilometer for subsequent distance covered. Write the linear equation to express the above statement. Draw the graph of the linear equation.
11. Factorise: $x^3 - 3x^2 - 9x - 5$.
12. Bisectors of angles B and C of a triangle ABC intersect each other at the point O(see below figure).

    Prove that $\angle BOC = 90° + \frac{1}{2}\angle A$.



SEC –D

13. The polynomial $f(x)= x^4 – 2x^3 +3x^2 – ax + b$ when divided by $(x – 1)$ and $(x + 1)$ leaves the remainders 5 and 19 respectively. Find the values of a and b. Hence, find the remainder when f(x) is divided by
    $(x – 3)$.

14. Plot the following points on a graph sheet
    A(5,6) , B(-4,0) , C(-2,-3), D(2,-4)
15. Solve the equation $2x + 1 = x – 3$, and represent the solution(s) on (i) the number line, (ii) the Cartesian plane.

16. Prove that "The sum of all interior angles of a triangle is 180^0". If the angles of a triangle are in the ratio 2 : 3 : 4, find the angles of the triangle.